1.1 INTRODUCTION

The Magnolia Power Project (MPP) is a proposed nominal 250-megawatt (MW) natural gas combined-cycle fired electrical generating facility to be located at the site of the existing City of Burbank (COB) power plant in Burbank, California. The proposed plant will be owned by the Southern California Public Power Authority (SCPPA, also referred to as Applicant) and operated by the COB. The electricity generated by this project will go to serve the needs of the residents of Burbank, as well as other member cities of the SCPPA.

The Applicant is seeking approval from the California Energy Commission (CEC) to construct and operate a state-of-the-art natural gas fired generation station at the existing COB site. The MPP, including ancillary facilities (fuel supply, water supply, wastewater discharge and electrical transmission), will be completely contained within the boundaries of the existing site. The COB has operated an electrical generating facility at this site since 1941.

The proposed project will be constructed on approximately three acres of the existing 23-acre site. An offsite construction laydown area will be located at a 2.4-acre site located two miles to the northwest of the power plant site.

The proposed project will provide approximately 250 megawatts nominally, and will incorporate duct firing and/or steam injection to achieve up to 328 MW during peaking. The electricity will be delivered to the existing COB Olive Substation for delivery to the COB system. Electricity will also be delivered to the City of Glendale and the Los Angeles Department of Water and Power (LADWP) transmission grid via an existing interconnection with the COB at LADWP's Receiving Station E, for use by the other SCPPA Participating Members.

The proposed project incorporates one combustion turbine generator operating in combined cycle mode. Currently, both General Electric (GE) and Siemens-Westinghouse (SW) are being considered as turbine vendors. The environmental analyses presented in this document are based on the worst-case turbine. The site arrangement has been designed to accommodate the possible future addition of another combined cycle unit. If the Applicant elects to install a second unit in the future, a separate Application for Certification (AFC) will be submitted.

The project will utilize selective catalytic reduction (SCR) and oxidizing catalysts to meet Best Available Control Technology (BACT)/Lowest Achievable Emission Rate (LAER) requirements. The project will meet all applicable air pollutant emission requirements.

This AFC has been prepared in accordance with the CEC's Rules of Practice and Procedure and Power Plant Site Certification, as amended. In addition, the Applicant is requesting expedited processing of this AFC under the six-month review process recently adopted by CEC. This AFC includes the following:

- A detailed description of the project
- An assessment of the anticipated impacts of the project to the existing environment
- Applicant-committed measures to reduce environmental impacts
- A discussion of compliance with applicable laws, ordinances, regulations and standards (LORS).

1.2 PROJECT NEED

Five members of the SCPPA are developing the MPP. These participants will be the primary users of the output from the project. The SCPPA members (Participating Members) interested in taking power from the project are the Cities of Anaheim, Burbank, Colton, Glendale, and Pasadena. In 1999 these Participating Members served approximately 317,000 customers. The Participating Members all have an obligation to serve the users of electric power within their respective service territories and are committed to continue to provide their customers electric power at a reasonable cost and in a reliable and environmentally acceptable manner. During periods of low demand by the customers of the Participating Members, it is anticipated that unneeded capacity and energy may be made available to the wholesale power market.

The aggregate peak load demand in 1999 of the Participating Members was approximately 1,540 MW and they experienced an aggregate average annual growth rate of approximately 2.9 percent over the previous five-year period. At this rate, an anticipated peak demand of approximately 1,780 MW by 2004 could be projected. They currently meet their load requirements by a combination of locally owned generation, remote jointly owned generation, long-term contracts (some of which will expire within the next five years), and short-term purchases. Based only on the historical growth, the need for new capacity by 2004 is 240 MW. This Project will only allow the Participating Members to meet new demand but not make up for some expiring long term contracts or reduce reliance on short-term purchases.

1.3 FACILITY LOCATION AND DESCRIPTION

1.3.1 Facility Location

The project facilities encompass approximately three acres within a 23-acre existing Magnolia and Olive power station site, located at 164 Magnolia Boulevard in Burbank, California (refer to Figure 3.2-1).

1.3.2 Facility Description

The proposed project is a combined cycle power plant to be located on the existing COB power station site. The proposed project will be designated as the Magnolia Power Project. The operating status of the existing Olive and Magnolia units is detailed in Table 1.3-1, Summary of Existing Facilities.

TABLE 1.3-1

SUMMARY OF EXISTING FACILITIES

Generating Unit	Unit Type	Rated Capacity (MW)	Historical Usage
Olive 1	Steam	44	Spinning Reserve, Low Utilization
Olive 2	Steam	55	Spinning Reserve, Low Utilization
Olive 3	CT*	23	Low Utilization for Emergency Peaking
Olive 4	CT	32	Low Utilization, Peaking
Magnolia 1	Steam	0	Decommissioned structure, originally 10.5 MW
Magnolia 2	Steam	0	Decommissioned structure, originally 10.5 MW
Magnolia 3	Steam	20	Standby
Magnolia 4	Steam	30	Standby
Magnolia 5	CT	22	Low Utilization, Peaking
Total Net Plant Output		**226**	

* CT = combustion turbine.

The project includes a power island, switchyard upgrades to the existing Olive Switchyard, onsite transmission, control and administrative buildings, wet mechanical-draft cooling towers, package boiler (this is an alternative to using steam from the existing units), storage tanks, natural gas compressors, and other ancillary facilities. The project also includes onsite

pipelines for natural gas supply, onsite pipelines for water supply, wastewater discharge, site access, and parking. No new offsite pipelines are involved.

The power island will consist of an advanced technology combustion turbine generator (CTG), a heat recovery steam generator (HRSG) with supplemental duct firing, and a steam turbine generator (STG). The project will be nominally rated at 250 MW.

The CT converts thermal energy produced by the combustion of natural gas into mechanical energy. This mechanical energy is used to drive the electric generator and air compressor. The CTG will be equipped with an inlet air evaporative cooling system to enhance performance on hot days. The CTG is nominally rated at 169 MW (95° F and 26.6% relative humidity).

The CTG will exhaust into a HRSG. The HRSG design will be a sliding-pressure, supplementary duct fired, dual-pressure reheat type with horizontal gas flow. The duct firing will produce additional steam in the HRSG. The HRSG includes inlet and outlet ductwork and a 150-foot tall stack.

The HRSG will produce steam for the STG. The STG converts thermal energy from steam into mechanical energy that drives the unit's generator. The STG generator is nominally rated at 85 MW without firing the HRSG and 147 MW with full firing of the HRSG. The total net output for the project is approximately 316 MW without injecting steam into the combustion turbine, and approximately 328 MW with combustion turbine injection steam.

A detailed description of the project components is presented in Section 3.4 (Facility Description), Section 3.5 (Civil/Structural Features), Section 3.6 (Transmission Interconnection Facilities), and Section 3.7 (Pipelines).

Heat rejection for the power cycle will be accomplished with a wet mechanical-draft cooling tower, condenser for the STG, recirculating water system, and auxiliary cooling water heat exchangers.

Oxides of nitrogen (NO_x) will be controlled by a combination of dry low NO_x combustors and post-combustion control. Emissions of NO_x will be controlled to 2.5 ppmvd (one hour average) at 15 percent O_2 utilizing SCR.

Good combustion engineering and control will reduce emissions of CO. CO emissions will be controlled to 6 ppmvd. Volatile organic compounds (VOCs) will be reduced by an estimated 90 percent with the SCR system to a level of 2 ppm (as methane). Additionally, sulfur dioxide (SO_2) and particulates less than 10 microns in size (PM_{10}) will be reduced by the use of natural gas as the plant's sole fuel source.

1.3.3 Site Layout

Figure 3.2-1 in Section 3.0 provides a map showing the location of the plant. Figure 3.4-2 provides an arrangement of major facilities on the site. Figure 3.4-3 is a site elevation drawing showing the project's major facilities. Figure 1.3-1 presents an artist's rendering of the project.

Primary access to the plant will be via the existing south gate on Olive Street (refer to 3.2-2). Additional access will be via the north gate on Magnolia Avenue.

1.3.4 Fuel Gas Interconnection

The project will be fueled by natural gas. There is no oil backup fuel supply. Natural gas at approximately 220 to 420 pounds per square inch-gauge (psig) is available at the site delivered by the Southern California Gas Company (SoCalGas), a California Public Utility. A new fuel gas valve and metering station(s) will be located onsite by SoCalGas. Downstream of the meter station(s), fuel gas piping will be routed to two new 100 percent capacity fuel gas compressors, to the HRSG duct burners, to existing Magnolia Unit 4, and to the Olive units.

1.3.5 Water Supply

Water will be supplied to the MPP via the COB potable water distribution system and the Burbank Water Reclamation Plant operated by the Burbank Public Works Department. The reclaimed water will be used as a makeup water source to the facility's evaporative cooling tower. Potable water from the city will be used at the facility during operations as cooling water, service water, and as supply to the cycle makeup treatment system. Water for use in the Fire Protection System will also be provided by the City of Burbank from the city water system.

The MPP is designed to maximize the use of reclaimed water for cooling. However, the amount of reclaimed water that can be used is constrained by limitations contained in the COB's current National Pollutant Discharge Elimination System (NPDES) discharge permit for its wastewater treatment plant. The Participating Members of SCPPA are sensitive to the need to minimize use of potable water for purposes that can be met by reclaimed water and will work collaboratively with the COB and regulatory bodies to resolve issues which hinder or preclude use of more reclaim water. As discussed in Section 3.4, compliance with existing discharge limitations would require, on average, 5,619,000 gallons per day (6900 acre-feet per year) of potable water with 941,000 gallons per day (1200 acre-feet per year) of reclaimed water. Should the COB discharge permit limits be raised, the Reclamation Plant can supply the total 6,560,000 gallons per day of reclaimed water needed for plant cooling, thus eliminating the need for the use of potable water for cooling.

In order to be conservative, the analysis in this AFC has assumed that the existing discharge permit limits remain in place. However, alternative water balances based on potential revised discharge permit limits are also discussed.

The potable water use for HRSG feedwater and service water is 393,000 gallons per day. The water supply for the COB comes from three different sources: local groundwater (59%), the Colorado River (3%), and the State Water Project (34%). Reclaimed water for irrigation makes up the remaining 4 percent of the COB supply.

MPP wastewater will be sent to the Burbank Western Channel, which is regulated by the COB NPDES Permit. Details are provided in Section 3.4.

1.3.6 Process Wastewater Discharge

The final combined wastewater discharge from the plant will include the following streams: cooling tower blowdown, sanitary drains, CTG evaporative cooler blowdown, steam cycle drains, and oil/water separator discharge. The combined wastewater is estimated to average 8,780,000 gallons per day and will be directed to the NPDES Discharge 001 (cooling tower blowdown) and to the local sewer (sanitary wastewater) for disposal.

For discharge to the local COB sewer, no improvements to the sewer will be required. The existing COB onsite sewer system is capable of handling all anticipated wastewater flows from the facility. Process waste characteristics are in Table 3.4-4 in Section 3.4. The project will comply with applicable wastewater treatment standards.

1.3.7 Electric Transmission Lines

The project will connect to the COB Olive 69 kilovolt (kV) Switchyard via two short 69 kV underground transmission lines across the Magnolia/Olive project site. The Olive Switchyard is connected to the COB Transmission and Distribution (T&D) system. Major upgrades to the Olive Switchyard will be performed in conjunction with this project.

1.4 SAFETY AND RELIABILITY

The project will be designed to ensure the safety and health of both workers and the general public. Design and construction of the facility will be in accordance with the current Uniform Building Code Seismic Zone 4 requirements and current California Building Code requirements. Safety and emergency systems will be incorporated into the design and construction of the facility to ensure safe and reliable operation. Worker safety programs will be developed for both construction and operation, and implemented to assure compliance with federal and state occupational safety and health requirements.

The project will be designed for a high level of availability, and to operate in a baseload mode (8,000 hours per year or more). The plant will be designed with a high degree of automation. The plant will be staffed 24-hours per day. Planned maintenance will be coordinated and scheduled to reduce the impact of having the unit offline. Normally, this work will be planned during periods when electricity demand is low.

1.5 ENVIRONMENTAL CONSIDERATIONS

This AFC addresses the following environmental resource issues in detail in Section 5.0, as per CEC regulations:

- Air Quality
- Geological Hazards and Resources
- Agriculture and Soils
- Water Resources
- Biological Resources
- Cultural Resources
- Paleontological Resources
- Land Use
- Socioeconomics
- Traffic and Transportation
- Noise
- Visual Resources
- Waste Management
- Hazardous Materials Handling
- Public Health
- Worker Safety
- Cumulative Impact.

The Applicant has minimized potential environmental impacts through project design measures, including facility siting and incorporation of proposed mitigation measures into the project design. The project will comply with all applicable environmental standards.

However, with any industrial project of this magnitude, there are environmental issues to be addressed. For this project, the key environmental issues are air quality, noise, water resources, and visual resources.

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Magnolia Power Project	**Source:** Black & Veatch Corp.	**Figure 1.3-1.** ARTIST'S RENDERING	March 2001